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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,190	07/22/2003	Thomas M. Clark	67,124-001; C02671	6846

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EXAMINER
PARSONS, THOMAS H

ART UNIT	PAPER NUMBER
1745	

DATE MAILED: 05/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/624,190	CLARK ET AL.	
	Examiner	Art Unit	
	Thomas H. Parsons	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 March 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8 and 10-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *23* is/are allowed.

6)☒ Claim(s) *1-6,14-17,19 and 22* is/are rejected.

7)☒ Claim(s) *7,8,10-13,18 and 20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

This is in response to the Amendment filed 28 March 2005.

Drawings

1. The objection to the drawings as failing to comply with 37 CFR 1.84(p)(5) because they include reference character(s) not mentioned in the description has been **withdrawn** in view of Applicants Amendment.

Specification

2. The objection to the disclosure because of minor informalities has been **withdrawn** in view of Applicants Amendment.

3. The rejections of claims 1-6, 9-10, 14-17 and 22 rejected under 35 U.S.C. 102(b) as being anticipated by Margiott (6,365,291) have been **withdrawn** in view of Applicants Amendment.

Response to Arguments

4. Applicant's arguments with respect to claims 1 and 15 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-6, 14-17 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Margiott (6,365,291).

Claim 1: Margiott in Figure 1 discloses a fuel cell power plant system comprising a fuel cell (12) having a first electrode (13) that receives a fuel including a hydrogen (14) and a second electrode (20) that receives an oxidant from a supply (222) and outputs exhaust; and enthalpy recovery device (64) having a first potion (72) in fluid communication with the oxidant (22) supply between the supply and the second electrode and a second portion (74) in fluid communication with the exhaust (66) of the second electrode; and a controller (not shown) that selectively controls the amount of fluid communication to at least one of the portions of the enthalpy recovery device based upon a selected condition; and a heater (108,110) for adding heat to the enthalpy recovery device (col. 6: 21-49; and col. 10: 41-col. 11: 15). (See also col. 6: 21-col. 12: 37.)

Claim 2: Margiott in Figure 1 discloses that the controller prevents the second portion (74) from receiving the exhaust from the second electrode (20) when the selected condition exists and wherein the selected condition comprises a temperature being below a selected threshold (col. 10: 60-61 and col. 11: 1-3).

Claim 3: Margiott in Figure 1 discloses that the controller prevents the first portion (72) from receiving the oxidant (22) from the supply when the selected condition exists and wherein the selected condition is at least one of a temperature being below a selected threshold (col. 10: 60-62; and col. 11: 7-15).

Claim 4: Margiott in Figure 1 discloses an exhaust conduit that directs exhaust from the second electrode (20) to the second portion (74), a bypass conduit (100) that directs the exhaust

away from the second portion and a valve (102) associated with the conduits, the control operating the valve to selectively allow the second electrode exhaust to flow to the second potion (col. 10: 41-col. 11: 15).

Claim 5: Margiott in Figure 1 discloses an oxidant supply conduit (24) that directs oxidant from the supply (22) through the first portion (72) to the second electrode (via pump 38 through conduit 28), a bypass conduit (104) that directs the oxidant from the supply (22) directly to the second electrode (via pump 38 through conduit 28) and a valve (106) associated with the conduits, the controller operating the valve to selectively allow the oxidant from the supply to pass through the conduits to control oxidant flow through the first portion (col. 10: 41-col. 11: 15).

Claim 6: Margiott in Figure 1 discloses that the controller selectively reduces the amount of fluid communication to at least one of the portions of the enthalpy recovery device based upon temperature within the system (col. 10: 41-col. 11: 15).

Claim 14: Margiott in Figure 1 discloses an exhaust burner (11) that process exhaust from the first electrode (13) and wherein an output from the exhaust burner is selectively supplied (via control valve (102) to the second portion (74) of the enthalpy recovery device (64) (col. 11: 31-38).

Claim 15: Margiott in Figure 1 discloses a method of operating an enthalpy recovery device in a fuel cell power plant where the enthalpy recovery device 64) has a first portion (72) in fluid communication with an oxidant supply (22) to the fuel cell and s second portion (74) that is in fluid communication with the exhaust from the fuel cell comprising selectively controlling the amount of fluid flow through at least one of the portions of the enthalpy recovery device

based upon a selected operating condition; and heating (108,110) the enthalpy recovery device (col. 6: 21-49; and col. 10: 41-col. 11: 15). (See also col. 6: 21-col. 12: 37.)

Claim 16: Margiott in Figure 1 discloses that the operating condition comprises temperature and including at least partially bypass (via valve 102 or 106) at least one of the portions (72, 74) of the enthalpy recovery device (64) when the temperature is below a selected threshold (col. 10: 60-61 and col. 11: 1-3).

Claim 17: Margiott in Figure 1 discloses completely bypassing (via valves 102 or 106) at least one of the portions (72 or 74) (col. 10: 60-61 and col. 11: 1-3).

Claim 22: Margiott in Figure 1 discloses heating the fuel cell exhaust (18) and introducing the heated exhaust (via 66) into the enthalpy recovery device with the oxidant (22).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Margiott as applied to claim 15 above.

Claim 19: Margiott in Figure 1 discloses completely bypassing the first portion (72) during a selected operating condition but is silent as to a startup operating condition.

However, Margiott discloses that the controller may by any controller known in the art for controlling flow valves in response to sensed parameters.

Therefore, it would have been within the skill of one having ordinary skill in the art of controllers to modify the controller to provide for completely bypassing the first portion during a start up operating condition.

Allowable Subject Matter

9. Claim 23 is allowable over the prior art of record.

10. Claims 7-8, 10, 11-13, 18, and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Reasons for Indicating Allowable Subject Matter

11. The following is a statement of reasons for the indication of allowable subject matter:

Margiott (6,365,291) discloses an enthalpy exchange barrier adapted to receive a liquid transfer medium wherein as a process exhaust stream passes through the exhaust chamber 74, water vapor from the fuel cell 12 is sorbed by the liquid transfer medium within the fine pore enthalpy exchange barrier 76 and desorbed from the liquid transfer medium into the process oxidant stream within the oxidant chamber 72, **thereby adding heat to**, and humidifying **the process oxidant stream before it enters the cathode flow field 20**. Further, a controller is adapted to selectively control the oxidant supply to the first portion 72.

However, there is no teaching or suggestion of an oxidant heater in combination with a controller wherein the controller is configured to selectively control the oxidant supply such that the **oxidant is heated by the oxidant heat prior to being supplied to the first portion (i.e.**

preheating). Accordingly, claims 7-8 and 20 are patentably distinct from the prior art of record.

The claimed invention is directed toward a heater that heats coolant and wherein the heated coolant and inlet oxidant flow together within the enthalpy recovery device. Such is neither taught nor suggest in the prior art reference of record. More particularly, Margiott discloses that the accumulator discharge line 58 selectively passes through an accumulator discharge valve 116 a portion of the direct antifreeze solution to the boiler 108 where the heat from the burner 110 boils the solution, and **then directs steam and liquid direct antifreeze solution to a steam separator 118 through a steam feed line 120**. A steam exhaust line 122 directs separated steam out of the steam separator 118, and a steam exhaust valve 124 selectively directs steam through a steam exhaust vent 126 out of the power plant 10. A separated direct antifreeze line 128 is secured between the steam separator 118 and the thermal management system to return separated direct antifreeze from the steam separator to the thermal management system, for example through a return valve 130 secured to the coolant loop 52 at the coolant feed line extension 60. **Accordingly, claim 10 is patentably distinct from the prior art of record.**

Grasso et al. (6.562,5030) teach a heater (e.g. a resistive element) positioned within an accumulator so that the recycling of heated water immiscible fluid is not required. Margiott is concerned with recycling a fluid (coolant) into device for transferring heat to the oxidant. The claimed invention requires a heater positioned within the device for heating a portion of the device. Neither Grasso et al. nor Margiott alone or in combination would lead one skilled in the art to a heater comprising a resistive element configured to warm one portion of the energy

recovery device, or a heater comprising electrical connections between one side of a first portion and one side of a second portion of the energy recovery device. **Accordingly, claims 11-12 are patentably distinct from the prior art of record.**

Margiott does not teach or suggest a cooler in combination with a heater wherein the heater is configured to receive heated coolant from the cooler. **Accordingly, claim 13 is patentably distinct from the prior art of record.**

The method of Margiott is concerned with preventing moisture or liquid from freezing by supplying the fuel cell system with a concentrated antifreeze solution. Therefore, one skill in the art would not be motivated to modify the method of Margiott to allow moisture or liquid within portions of the energy recovery device to freeze. Further, Margiott does not teach or suggest preheating the oxidant before it is provided to the first portion of the energy recovery device, heating the enthalpy device, or preheating the fuel cell exhaust. **Accordingly, claims 18 and 23 are patentably distinct from the prior art of record.**

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas H. Parsons whose telephone number is (571) 272-1290. The examiner can normally be reached on M-F (7:00-4:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thomas H Parsons
Examiner
Art Unit 1745

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PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER